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09/501,251	02/10/2000	Josef Theurer	THEURER-21	3590

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 20040614

Application Number: 09/501,251
Filing Date: February 10, 2000
Appellant(s): THEURER ET AL.

Henry M. Feiereisen
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 26 May 2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1 and 3 stand or fall together.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

3,821,933	PLASSER et al	7-1974
5,233,357	INGENSAND et al	8-1993

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,821,933 to Plasser et al. in view of U.S. Patent No. 5,233,357 to Ingensand et al.

Plasser discloses a method of surveying a track comprising positioning a mobile measuring vehicle and a stationary measuring vehicle at end points of a track section to be measured during a measuring cycle, the mobile measuring vehicle being designed for mobility along a reference line in the form of an optical measuring beam between an emitter mounted on the stationary measuring vehicle and a receiving unit mounted on the mobile measuring vehicle and supported by flanged rollers (column 6, lines 66-67) on the track section (column 5, lines 5-34 and column

7, lines 18-46). Plasser discloses determining, at the start of each measuring cycle, position coordinates of the emitter/stationary measuring vehicle relative to a fixedly installed reference location adjacent the track section to be measured, the coordinates of the reference location being known within a terrestrial coordinate system, and aligning the reference line with the mobile measuring vehicle on the basis of the position data determined with the aid of the location information provided by the reference location (column 8, lines 9-12). Plasser discloses registering, as a correction measurement value, a change in the position of the receiving unit relative to the reference line in dependency on an actual track position of the receiving unit transmitted by an odometer attached to the flanged rollers, as the mobile measuring vehicle advance in the direction towards the stationary measuring vehicle to survey the track (column 6, lines 6-32 and column 8, lines 12-33).

While Plasser does disclose determining the initial position of the emitter/stationary measuring vehicle based upon reference locations adjacent the track section (column 3, lines 10-16), Plasser doesn't disclose using a GPS receiver in order to determine the position of the emitting surveying apparatus.

Ingensand teaches a surveying system comprising a surveying device that contains a GPS receiver fixed thereon (column 2, lines 23-33) wherein the surveying device emits a beam to survey the position of several points based upon the initial position of the device determined by the GPS receiver (column 2, lines 34-36 and 64-68).

It would have been obvious to one having ordinary skill in the art to modify the invention of Plasser to include using a GPS receiver in order to determine the position of the emitting surveying apparatus, as taught by Ingensand, because Plasser teaches a time-consuming inaccurate method for determining the position of the mobile device based upon telegraph poles and marking posts (column 2, lines 27-32) and Ingensand suggests that the combination would have provided a method for determining this initial position with a faster, more convenient method as well as with increased accuracy (column 1, lines 21-30). Further, the invention of Plasser was published in 1974. At this time GPS devices were not readily available, however, one having ordinary skill in the art would recognize that since the publication of the invention of Plasser, GPS has become a well known, accurate, and convenient system for determining the exact position of devices, as would have been applicable in the invention of Plasser.

(11) Response to Argument

Appellant disagrees with the Examiner's assertion that it would have been obvious to one having ordinary skill in the art to modify the invention of Plasser to include using a GPS receiver in order to determine the position of the emitting surveying apparatus, as taught by Ingensand, stating "[t]he Examiner appears to use appellant's own disclosure to arrive at this conclusion. Plasser et al. does neither expressly nor implicitly assign in the passages of col. 2 lines 27-32 or col. 8, lines 9-12 any disadvantage to the optical measurement in relation to fixed points at the beginning of

the operation. In particular, nothing in the Plasser et al. reference would indicate to an artisan that the surveying method is 'inaccurate' as the Examiner implied. To the contrary, Plasser et al., in fact, relates on numerous occasions to the accuracy of the method."

The Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, the determination that the method of Plasser et al. is inaccurate is consistent with knowledge generally available to one of ordinary skill in the art. Plasser et al. specifically states that "[a] laser beam gun emitting the reference beam is carried by a carriage mounted for mobility in an uncorrected section of the track, and a laser beam receiver or sensor is mounted on the liner. Means is provided for adjustably positioning the laser beam gun and receiver transversely of the track in relation to fixed points, such as telegraph poles, marking posts and the like, defining a planned track position and respectively associated with the laser beam gun and receiver" (column 2, lines 24-32). One having ordinary skill in the art would recognize that positioning the laser beam gun in relation to telegraph poles and marking posts is inaccurate due to difficulties in exactly lining such devices, variations in the positions of the poles/posts, etc.

In addition to the general knowledge in the art, as presented above, the Examiner also maintains that motivation exits in the Ingensand reference itself stating that "[s]atellite positioning-measuring systems enable three-dimensional differential position finding with geodetic accuracy A precondition is the use of a fixedly receiving apparatus, tuned to the system, and one or more mobile sets. It is a characteristic feature of such sytems that position finding can be undertaken in relatively short time intervals, e.g., in a few seconds, whereby it is also possible to rapidly determine changes in position (column 1, lines 21-30).

Further still, the Examiner asserts that the invention of Plasser was published in 1974. At this time GPS devices were not readily available, however, one having ordinary skill in the art would recognize that since the publication of the invention of Plasser, GPS has become a well known, accurate, and convenient system for determining the exact position of devices, as would have been applicable in the invention of Plasser.

Appellant also argues, in reference to the combination of Plasser with Ingensand, that the Examiner "referred in this context to various passages in Plasser et al. that deal with track maintenance operations such as track lining, leveling or tamping that can be initiated in response to the track surveying method. These track maintenance operations have nothing to do with the actual surveying method but merely response to the outcome of the surveying method. To conclude therefore that, since the track liner of Plasser et al. is able to carry out a wide array of operations, the artisan would

therefore be motivated to use the GPS system only for determination of the initial position of the stationary device is ill-advised."

The Examiner maintains that the optical method of Plasser determines deviations of the track from a desired position (column 1, lines 56-67) for use in a track lining, leveling, and tamping machine (column 2, lines 42-47) thereby allowing the lateral and leveling adjustment of the track (column 7, lines 41-46) as well as providing communication between the optical system and an odometer system during measuring and adjusting operation (column 6, lines 6-32 and column 8, lines 12-33). These particulars of the invention are not unrelated to the surveying method but provide means to use the survey outcome and, with respect to the odometer system, clearly implement the surveying operation using both the odometer and the optical system.

Therefore, since the optical measurement system of Plasser is a complex system that performs comparison operation with respect to expected positions and provides for different types of adjustment detection, not readily detectable by a general GPS system, one skilled in the art would not be motivated to replace this optical system with the GPS system. Since the initial detection of a fixed location is not a complicated measurement, however, one having ordinary skill in the art would recognize the ability to replace a system that determines an initial location based upon telegraph poles and marking posts with the GPS system of Ingensand.

Appellant then argues that the Examiner has used improper hindsight analysis since "[a]n artisan interpreting the Plasser et al. reference in a manner as the Examiner

suggested would, in fact, take the teaching of Ingensand et al. and replace the optical measurement process of Plasser et al. in its entirety with the GPS system, as taught in Ingensand et al.[.] The Examiner himself underlies the benefits of the GPS system as 'a well known, accurate, and convenient system for determining the exact position of devices'. Thus, the Examiner opined that, had the GPS system been available at the time of the Plasser et al. invention, the artisan would have utilized the GPS system. . . The error in the Examiner's line of reasoning lies in the suggestion that an artisan would be motivated to modify only the initial stage of the optical measurement system according to Plasser et al. only as far as the initial stage is concerned."

In response to appellant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the appellant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Again, as noted above, in the invention of Plasser the aligning of a device with an initial position based upon telegraph poles and/or marking posts is a simple operation that would easily be replaced by a GPS device to minimize the time required and increase the accuracy. The remaining method performed in the surveying operation includes many additional detailed features (for example, "The value of deviation of the

track, i.e., the lining error parameter, from the planned position of the track, as indicated by the reference beam, is determined in dependence on the length of the path of movement of the receiver by adjusting the receiver or emitter in respect of each other" (column 1, lines 56-67), "While the receiver advances on the track, together with the track lining rollers 21''', towards the laser beam gun, the signal form the odometer 40''' transmits the distance of the traveled path via line 41''' to control unit 8. The control unit is connected to motor 49''' by line 33''' to rotate spindle 71 and thus to move the nut 71' on the spindle until the laser beam gun, which is affixed to the nut, has reached the planned position in the direction of double-headed arrow 71''''(column 8, lines 12-33)).

Since a simple GPS receiver does not easily replace these limitations, it would not be obvious to one having ordinary skill in the art to replace the entire optical system.

Further, the invention of Ingensand does not teach or suggest to one having ordinary skill in the art the ability or desirability to replace such a system, nor would there be a reasonable expectation of success, but Ingensand instead teaches GPS receiver usage for determining an initial position. Therefore, the combination would only replace the initial operation and not the entire system.

Appellant also notes "that the surveying method according to the present invention not only sets forth the use of the GPS system on the stationary measuring vehicle at the start of each measuring cycle, but also sets forth that the GPS system on the stationary measuring vehicle is implemented relative to a **fixedly** installed GPS reference station which is located adjacent the track section and whose coordinates are

known within a terrestrial coordinate system. . . Nothing in Ingensand et al. teaches or suggests the determination of position coordinates of the stationary vehicle in relation to the known coordinates of a fixedly installed GPS reference station, as set forth in Claim 1. Rather, Ingensand et al. describes only a direct GPS measurement which has the inherent inaccuracies recognized by the appellant."

The Examiner asserts that Ingensand does teach "a total station 1 for the combined measurement of angle and distance, which is provided with a positive centering unit 2 for attaching a satellite position-measuring receiver 3" (column 2, lines 23-26), wherein "the position of the total station 1 has been either measured by mounting a satellite receiver, or computed by resectioning from the positions of the two satellite receiving apparatuses 5 and 6" (i.e. fixedly installed reference stations) (column 2, lines 64-68).

Further, the Examiner maintains that Plasser discloses determining, at the start of each measuring cycle, position coordinates of the emitter/stationary measuring vehicle relative to a known fixedly installed reference location adjacent the track section to be measured (column 8, lines 9-12 and Figures 1 and 2) and the invention of Ingensand is then included to modify the position determination based upon known, fixedly installed reference locations adjacent the track section, disclosed by Plasser, to include GPS devices.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

jrw
June 15, 2004

Conferees
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